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From Pixels to Prose: Teachers' Views on the Power of Digital Imagery in Early Language Development

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ABSTRACT

This study examined how digital imagery contributes to young learners' language development from the perspective of 856 primary-stage teachers in Riyadh (Saudi Arabia) and Amman (Jordan). The data were collected using a carefully designed and validated survey questionnaire developed by the researchers. The findings revealed that digital imagery significantly supports language development in areas such as vocabulary building, listening comprehension, and reading comprehension. The respondents noted that digital imagery helps young learners make word-meaning associations, which, in turn, facilitates the overall language learning process. Interactive images were also found to promote engagement and motivation among learners through sparking curiosity, fostering creativity, and encouraging active participation in language-related activities. Interestingly, despite differences in the academic qualifications and years of teaching experience among the respondents, reports of the positive effect of digital imagery were nearly unanimous. These findings emphasize the need for both well-thought out integration of digital imagery into early grades language curricula to maximize its benefits. Moreover, they highlight the need for ongoing professional development and training programs to help teachers effectively utilize these tools. By creating dynamic, image-rich learning environments, teachers can enrich young learners' experiences and allow them opportunities for augmented language development. In light of these findings, the researchers call for further research to explore the ways teachers apply digital imagery across diverse cultural and educational contexts,

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as well as the challenges they face. Continuous professional support and innovative strategies are recommended to fully harness the transformative potential of digital imagery in the early-grade language classroom.

Keywords: Constructivism; Digital Imagery; Early Childhood Education; Language Development; Teacher Views; TPACK

1. Introduction

Language skills are among the most important variables contributing to children's ability to effectively communicate and interact effectively within their communities. Through strong language skills, children can clearly express their thoughts and emotions and understand others, comprehending the information directed towards them[1, 2]. Language skills include listening, speaking, reading, and writing, all of which are fundamental throughout academic and professional stages of life. In early childhood, the way these skills are at this age determines the child's cognitive and social development and his/ her character and perception of the environment[2, 3].

It is, therefore, important to teach language skills to children in the early years as this is the basis for the development of language abilities[4, 5]. Historically, traditional education methods focused on rote learning and direct explanation, Technological innovations have radically transformed this area, offering teachers new more interactive teaching strategies. In this context, digital technology has become an integral part of modern learning environments, providing innovative tools and resources that effectively enhance young learners' language development experience[1, 2, 5, 6].

In this digital era, technology transcends traditional devices, such as the computer and the Internet, to advanced resources that have revolutionized how children engage with instructional content[7, 8]. Digital imagery (e.g., illustrations, infographics, and interactive media) has emerged as a particularly effective tool in language teaching and learning, as visuals help children associate words with images, which not only facilitates vocabulary acquisition but also improves comprehension and general language use[9–11].

Digital imagery also catalyzes engagement and active participation through the facilitation of interactive and dynamic learning environments. Animations and illustrations, for instance, can not only clarify complex language concepts but also provide a context which connects words to relatable scenarios. In fact, using digital imagery not only aligns with children's day-to-day experiences but also sparks their imagination, foster their creativity and support their overall language development[11–13]. More specifically, digital imagery is key in helping young learners expand their vocabulary, develop their oral and written skills, and express themselves with confidence, all in a stimulating, more engaging learning environment[1, 2, 4, 6, 8, 9].

Most recently, AI-supported applications (e.g., Lingokids, Epic!, Osmo Words, ClassDojo, Duolingo ABC) have added unprecedented capabilities to the language classroom, transforming digital images into dynamic learning tools for engaging, age-appropriate, and interactive learning experiences[13] which potentially catalyze both learning outcomes and learner engagement and interest in learning. Image captioning, vocabulary extraction, and interactive exercises, coupled with the analysis, annotation, and adaptation of visual content to suit diverse learning styles and proficiency levels, potentially make learning of complex abstract concepts more accessible, which fosters engagement, personalization, and better comprehension. For example, AI can generate language-specific prompts from an image, suggest culturally relevant contexts, or create adaptive flashcards, which helps young learners connect visuals with language structures, fostering retention and contextual understanding across proficiency levels and learning styles.

Current advancements in technology empower teachers to use applications that incorporate digital images into their lessons with relative ease. For example, interactive e-books, enriched with animations and sound effects, can provide children with engaging and dynamic learning experiences[6, 8, 9, 11, 14, 15]. Furthermore, teachers can create lessons that are not only more interactive but also more interactive, participatory, and engaging to learners by utilizing productivity tools which also promote communication and self-expression[1, 2, 6, 16, 17].

Educational experts[14, 15] stress the utility of integrating digital imagery into the STEAM curriculum, highlighting its role in enhancing the learning experience through visually stimulating active and interactive learning. Digital imagery

not only cultivates analytical, communication, and critical thinking skills but also helps create an inclusive learning environment where learning is for all students, particularly young learners from disadvantaged backgrounds.

Moreover, digital imagery is key in vocabulary development, text comprehension, and storytelling, which potentially affects both the cognitive and emotional aspects of language learning. Digital games, when paired with digital images, serve as powerful interactive tools for fostering learning and cognitive and emotional growth in young learners[17].

A plethora of research[2, 7, 9, 18–20] has examined the utility of digital imagery in various stages of language learning. The findings suggest that visual media positively affects language development in vocabulary building, comprehension, and overall language development. Research evidence[2, 3, 6, 8, 18–20] abounds that young learners exposed to interactive, image-rich e-books show significant improvement in both reading comprehension and vocabulary development (compared to those exposed to traditional text-based materials). The literature[2, 3, 12, 16, 17] suggests that imagery-based learning activities improve young learners' reading comprehension. Similarly, the literature[5, 11, 15, 18, 21–23] suggests that the visual context provided by digital imagery helps children develop deeper understanding of vocabulary through making connections between words and real-world meanings.

Previous research[11, 12, 15–17, 21, 24–28] also demonstrates how digital imagery contributes to young learners' language development. Digital imagery is reported to help young learners understand abstract words and complex concepts by linking them to tangible visual representations. When young learners are exposed to information in both verbal and visual formats, their language comprehension and retention improve significantly[17, 21, 29–33]. Exposure to both modalities was also found more effective than relying solely on text, which attests to the significance of visual media in supporting language development[34–37].

Furthermore, educators[16, 17, 21, 35, 38, 39] explored how digital images support different levels of cognitive processing in children by moving from basic recognition of images and words to higher cognitive skills such as inference and analysis. This interaction with images enhances critical thinking, which is essential for developing cognitive and language skills. By actively engaging children in understanding content through visual media, the study concluded that digital images foster a more dynamic and interactive learning experience, promoting deep engagement with the material.

A good body of research[2, 3, 11, 15, 17, 21, 24, 25, 35, 38–40] reports that digital imagery not only facilitates language learning but also profoundly affects young learners' emotional engagement with instructional content. The images, animations, and interactive visual media captures young learners' attention, sparking their curiosity and motivating them to participate actively in the learning process[3, 4, 26, 27, 35, 41–43]. This emotional investment is crucial for fostering positive attitudes toward, interest in, and love for learning, as learners who interact with digital images are reported to show greater motivation to explore new ideas and engage in classroom activities. These findings underscore the significance of digital imagery in emotionally and cognitively engaging young learners, catalyzing both the effectiveness and enjoyability of the learning process[12, 44–46].

Furthermore, research[17, 19, 20] underscores the importance of understanding parent's perceptions of instructional tools, of which digital imagery is one. Effective integration of digital imagery into early language learning relies heavily on collaborative partnerships between home and school. Parents' perceptions of and attitudes toward technological tools, including digital imagery, are key to determining how (and if) these tools are used in home and school contexts[17, 19, 20]. When parents are aware of the value of digital imagery in supporting young learners' language development, they are more likely to support its use at home.

Teachers are keen on selecting and implementing appropriate digital tools that align with curricular goals and the developmental needs of their young learners. By maintaining open communication with parents, teachers can provide guidance on how these tools can be effectively used beyond the classroom setting to support language development. This collaboration between teachers and parents is particularly critical in the early grades, where foundational language skills are developed, as effective collaboration is key for an enriched learning environment where digital imagery bridges school-based learning and home-based reinforcement, ultimately catalyzing young learners' language development and overall academic growth.

Previous research[26, 27, 35, 39, 47] has also shown the effect of digital imagery on teaching symbolic language when

strategically integrated into narratives and linguistic and mathematical exercises, enhancing both listening and speaking skills. This integration allowed children to visualize narratives, simultaneously encouraging verbal expression and making the learning experience more engaging. Various studies[41, 42, 47, 48] found that using images alongside words not only improved language acquisition but also encouraged children to express their thoughts fluently, thus enhancing their overall language development.

While the research reviewed collectively demonstrates the significant benefits of digital imagery in language learning, it also highlights certain challenges. A good body of research examines the effectiveness of digital imagery, but it does not consider the challenges teachers face when using digital imagery in the language classroom. Inadequate teacher training on technology integration is one of the major challenges facing teachers today. Heavy reliance on technology is also a major challenge, as excessive use of digital imagery could lead to distraction or superficial understanding if not carefully aligned to and integrated into the curriculum. Therefore, digital imagery integration into the early language classroom should be both deliberate and aligned to the specific goals of the curriculum.

However, despite these challenges, existing research overwhelmingly attests to the value of digital imagery and its contribution to better early language development. Nevertheless, more research is still needed to examine teachers' perceptions of and experiences with using digital imagery in the early language classroom. Gaining insights on how teachers perceive digital imagery, the challenges they face, and the mechanisms they use to incorporate digital imagery into the early-grade language classroom is crucial. These insights can inform better teacher practices for incorporating digital imagery into the early language classroom, ensuring both more effective implementation and better teacher's access to both resources and training.

Digital imagery has emerged as a powerful tool in language pedagogy, offering innovative ways to catalyze vocabulary development, reading comprehension, and self-expression among young learners. To harness the potential of digital imagery, this research draws on established instructional frameworks which underscore the intersection of technology, pedagogy, and content knowledge. The research is informed by the Technological Pedagogical Content Knowledge (TPACK) framework, emphasizing the need for teachers to integrate technological tools, such as digital imagery, with pedagogical strategies and subject-specific content knowledge. TPACK emphasizes the significance of understanding how digital imagery supports early language development and how it can be strategically used to catalyze learning outcomes. Moreover, this research is informed by constructivism, which asserts that learners actively construct knowledge through engagement, interaction, and contextual experiences. Digital imagery readily aligns with constructivist learning, as it scaffolds abstract language concepts with visual representations, which not only actively engages young learners with content but also enables them to meaningfully link words to their contextual meanings.

Through the lens of these two theoretical models, this research aims to provide an understanding of the teacher-perceived role of digital imagery as a conduit between language and meaning in early language development[16, 17, 21, 23–25]. More specifically, the study attempts to answer the following research questions.

1. What are language teachers' perceptions of the role of digital imagery in early language development?
2. Are there statistically significant differences (at $p \leq 0.05$) in teachers' perceptions of the role of digital imagery which can be attributed to their academic qualification and teaching experience?

2. Methodology and Procedures

2.1. Design of the Study

This study uses a descriptive analytical approach, which is most suitable for understanding teachers' perceptions of the utility of digital imagery in early-grade learners' language development in light of two demographic variables: academic qualification and teaching experience. The findings are gleaned from quantitatively analyzing the data collected from the teachers' response to the questionnaire.

The descriptive analytical approach was chosen because it enables the researchers to systematically examine the patterns and relationships in the teachers' responses to the questionnaire, allowing for a clear snapshot of teachers' perceptions across demographic groups. Furthermore, by using a quantitative survey design, the researchers can ascertain

statistical analyzability, objectivity, and reproducibility of the data, which, in turn, potentially establishes the reliability and validity of the findings.

This design also facilitates the exploration and identification of both broad and specific aspects of teachers' perceptions to fully answer the two questions of the research. It provides a structured framework for identifying areas where digital imagery is perceived to be most effective and the perceived challenges facing its integration into the early-grade language classroom. In addition, through this design, the researchers have been able to make use of statistical tools, such as ANOVA, to determine the statistical significance of the differences brought about by the two variables.

2.2. Participants

Eight hundred and fifty-six early-grade language teachers were randomly selected from private schools in Riyadh (Saudi Arabia) and Amman (Jordan) as the sample of the research, four hundred and fifty teachers from Riyadh (53 percent) and four hundred and six teachers from Amman (47 percent). The two cities were purposefully selected to ensure participant- and context- diversity to gain insights on how digital imagery is used in the early-grade language classroom across distinct educational contexts. The respondents were classified according to the variables of academic qualification and teaching experience, as shown in **Table 1** below.

Table 1. Sample Distribution by Academic Qualification and Teaching Experience.

Variable	Level	n	%
Academic Qualification	Diploma in Education	203	23.7
	Bachelor's Degree	397	46.4
	Higher Degree (Master's and/or Ph.D.)	256	29.9
Teaching Experience	1–5 Years	210	24.5
	6–10 Years	320	37.4
	More than 10 Years	326	38.1

Table 1 presents the distribution of the sample along the demographic variables of academic qualification and teaching experience. About 24, 46, and 30 percent of the respondents hold a Diploma in Education, a Bachelor's Degree and/or a higher academic qualification (viz., Master's and/or Doctoral degrees), respectively. In terms of teaching experience, the highest percentage of respondents has more than 10 years of teaching experience, followed by the 6–10 years group and the 1–5 years group, respectively. This distribution ascertains the credibility of the teachers' perceptions of the role of digital imagery in the early-grade language classroom, as the combination of diverse academic qualifications and significant teaching experience ensures comprehensive representation of views.

2.3. Instrument of the Study

The instrument comprises a questionnaire, developed to gauge the teachers' perceptions of the role of digital imagery in young learners' language development. The questionnaire was developed based on an extensive review of the literature on language teaching and integration of digital imagery in

language teaching and learning [47]. The first version of the questionnaire consisted of 30 items on teachers' perceptions of the role of digital imagery in early language development.

Following review by experts in early childhood and language education, who provided feedback on clarity, relevance, and adequacy, seven items were removed, resulting in a 23-item version. Responses were given on a five-point Likert scale (viz., *very high, high, undecided, low,* and *very low*) to gauge the respondents' perceptions of the role of digital imagery in young learners' language development.

The reliability of the questionnaire was established following a pilot study of 23 teachers who were excluded from the main sample of the study. A two-week lapse was allowed between the two distributions of the questionnaire. Pearson's correlation coefficient amounted to 0.96, which was deemed appropriate for the purpose of the research.

2.4. Data Collection and Analysis

Copies of the questionnaire were distributed to teachers in both Riyadh (Saudi Arabia) and Amman (Jordan) both hand-to-hand or by email and online social networks. The

cover letter to the questionnaire contained instructions to respondents to ensure proper response and that the respondents meet the inclusion criteria set by the researchers.

The data collection process lasted one month, with diligent follow-up to ensure that the maximum number of questionnaires is filled. Out of the 890 questionnaires distributed, 856 copies (95 percent) were returned. The data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics (viz., means and standard deviations) were used to identify general patterns of teachers' responses whereas Analysis of Variance (ANOVA) was used to determine the effect of the independent variables (viz., academic qualification and teaching experience) on the dependent variable of teachers' perceptions.

2.5. Ethical Considerations and Data Protection

The ethical approval for the study was obtained from the Ethics Committee of King Faisal University, Saudi Arabia. The application for ethical approval was submitted prior to the commencement of data collection to ensure that the procedures comply with institutional research standards. The participants were given information about the research (e.g., purpose, methods of data collection and analysis) and were assured that participation was voluntary and that they could withdraw from the study at any time. In addition, to ensure confidentiality and protection of the participants' rights, the data, which were used solely for the purpose of this research, were collected in a manner that ensured that the participants' names were replaced with identification numbers in all the records and files which were themselves encrypted and protected with passwords.

3. Results

3.1. Results of the First Research Question

The first research question sought to identify early-grade teachers' perceptions of the role of digital imagery in young learners' language development. Towards this end, means and standard deviations of the teachers' perception were calculated. **Table 2** below shows the means, standard deviations, and ratings for the items of the questionnaire in descending order.

Table 2. Means and Standard Deviations of Teacher-Perceived Utility of Digital Imagery in Language Development.

No.	Items I Consider Digital Imagery Especially Effective in the Following Aspects:	Mean	SD	Rating
1	Learning reading	4.95	0.85	High
2	Fostering creative thinking and problem-solving	4.90	0.82	High
3	Providing appropriate instructional content for different proficiency levels	4.89	0.80	High
4	Explaining cultural contexts related to language	4.87	0.91	High
5	Enhancing language teaching efficiency	4.85	0.88	High
6	Making classroom activities more interactive	4.75	0.83	High
7	Integrating games to promote interaction	4.72	0.79	High
8	Reducing distractions and improving discipline	4.70	0.97	High
9	Learning new vocabulary	4.68	0.95	High
10	Fostering collaboration among learners (during group activities)	4.68	0.85	High
11	Organizing in-class group activities	4.68	0.84	High
12	Encouraging open discussions among learners	4.66	0.94	High
13	Encouraging learner interaction (during explanations)	4.65	0.91	High
14	Making lessons more engaging and enjoyable	4.63	0.85	High
15	Fostering learners' love for learning	4.62	0.92	High
16	Visually explaining grammatical rules	4.61	0.89	High
17	Motivating learners and promoting their enthusiasm for learning	4.60	0.95	High
18	Promoting learners' understanding of cultural and social topics	4.59	0.93	High
19	Developing learners' speaking skills	4.57	0.93	High
20	Promoting learners' attention	4.55	0.89	High
21	Clarifying complex language concepts	4.50	0.92	High
22	Saving time on in-class explanations and interpretations	4.49	0.92	High
23	Encouraging learners' engagement in creative writing	4.40	0.98	High
	Total	4.77	0.89	High

Table 2 shows that all 23 items of the questionnaire were perceived as highly important, underscoring the significant role of digital imagery in supporting various aspects of young learners' language development. Certain items received notably high mean scores, underscoring the marked effect of digital imagery on different facets of early language development. For instance, the item, the item, *I consider digital imagery especially effective in learning reading,* has the highest mean score of 4.95, which suggests that digital imagery is important in developing reading skills. Aside from helping young learners identify letters and words, digital imagery helps them better understand contextual meaning, hence enhancing the learner's reading comprehension. Similarly, the item, *I consider digital imagery especially effective in fostering creative thinking and problem-solving,* has a mean score of 4.90, which highlights the perceived role of digital imagery in the development of young learners' critical thinking skills. This may suggest that digital imagery is used not only as an instructional tools but also as one which encourages young learners to use critical thinking and creative problem-solving, which in turn makes the learner more involved in his/her learning Similarly, the item, *I consider digital imagery especially effective in providing appropriate instructional content for different proficiency levels,* has a mean score of 4.89. This suggests that digital imagery potentially enables the teachers to cater for the diverse needs of learners and provide individual attention which reduces bias and increases effectiveness.

The use of digital imagery is also perceived to strengthen collaboration among learners during group activities and facilitates effective classroom management, as it stimulates learner interaction and cultivates a sense of teamwork. When integrated into group activities, digital images encourage students to actively engage in discussions and problem-solving, improving their social communication and collaboration skills, which are fundamental objectives in early childhood education. The findings also suggest that digital imagery significantly fosters learner engagement and understanding of cultural and social topics. Integrating images representing diverse cultures and experiences into education broadens young learners' awareness of the world around them, fosters communication, and encourages self-expression. Moreover, digital imagery stimulates creative writing. By visualizing ideas through imagery, learners are better able to express themselves in writing, leading to improved writing abilities. Coupled with the top-ranking item on teaching reading, digital imagery is perceived as a catalyst for reading and writing development, which are critical for overall language development.

To reiterate, the findings pertinent to the first research question reveal that teachers perceive digital imagery as a driver of creative thinking, reading and writing skills, interaction and collaboration, and understanding of cultural and social dynamics. Using digital imagery in the early-grade language classroom potentially makes learning more engaging, meaningful, and effective.

3.2. Results of the Second Question

To answer the second research question, which seeks any statistically significant differences (at $p \leq 0.05$) in the perceptions of teachers that can be attributed to teaching experience (short, medium, long) and educational qualification (Diploma in Education, a Bachelor's degree, Higher Qualification (a Master's and/or Doctoral degree), means and standard deviations for each level of the independent variables were calculated, as shown in **Table 3**.

Table 3. Means and Standard Deviations of the Variables of Qualification and Experience.

Variable	Level	n	Mean	SD
Academic Qualification	Diploma in Education	203	4.78	0.70
	Bachelor's Degree	397	4.76	0.85
	Higher Degree (Master's or Ph.D.)	256	4.73	0.68
Teaching Experience	1–5 Years	210	4.69	0.59
	6–10 Years	320	4.65	0.96
	More than 10 Years	326	4.59	0.71

Table 3 shows slight variation in the means and standard deviations of the teachers' perceived utility in light of the various levels of the independent variables of qualification and teaching experience. For example, it appears that teachers with a Diploma in Education show slightly higher means compared to those with a Bachelor's degree or higher qualification. The differences in teaching experience are also evident with the means being higher for teachers with shorter experience (1–5 years) than those with longer experience (more than 10 years).

Although there are observed differences, they are small, suggesting that teachers' perceptions may not be significantly affected by either qualification or teaching experience alone. However, these observed differences warrant further investigation to understand whether they truly affect the teachers' perceptions of the utility of digital imagery in young learners' language development. To determine the statistical significance of the observed differences in the means, a two-way ANOVA was conducted to test the effect of qualification and teaching experience on teachers' perceptions, as shown in Table 4 below.

Table 4 illustrates that the results of the ANOVA analysis clarify that the F-value for academic qualification was 0.357, which is not statistically significant at the ($p \leq 0.05$) level. This suggests that there are no statistically significant differences in the perceptions of teachers brought about by their qualifications. In other words, variations in academic qualification (Teaching Diploma, Bachelor's, or higher qualification) do not significantly affect teachers' perceptions of the utility of digital imagery in young learners' language development.

Moreover, **Table 4** shows that the F-value for teaching experience was 1.711, which is also not statistically significant at the ($p \leq 0.05$) level. This suggests that teaching experience has little effect on teachers' perceptions of the utility of digital imagery in young learners' language development. Thus, it can be surmised that whether the teachers have short experience (1–5 years), moderate experience (6–10 years) or long experience (more than 10 years), it does not seem to make a lot of difference to their perceptions.

Table 4. Two-Way ANOVA of the Effect of Academic Qualification and Teaching Experience.

Source	Sum of Squares	df.	Mean Square	F-Value	Sig.
Educational Qualification	0.609	2	0.123	0.357	0.674
Teaching Experience	1.005	2	0.822	1.711	0.143
Error	48.029	851	0.263		
Total	49.581	855			

These findings indicate that both academic qualification and teaching experience do not play a significant role in the teachers' perceptions of the utility of digital imagery in young learners' language development, which raises questions about other variables that may affect teachers' perceptions. Continuous professional development, administrative support, and the nature of the school environment may play a more significant role in shaping teachers' perceptions than academic qualification or teaching experience.

The lack of statistically significant differences may also mean that all teachers, regardless of their qualification or years of experience, are exposed to similar educational experiences or that professional development programs have mitigated the effect of academic qualification and experience. It is also worth noting that the academic qualification variable in this study comprises three levels, which may have added complexity to interpreting the differences in teachers' perceptions of the utility of digital imagery in young learners' language development.

4. Discussion of Results

4.1. Discussion of the First Research Question

The findings of this study reveal that digital imagery comprises an important driver of early language thinking development and an aid in the growth of several cognitive and social skills. Several factors may account for these results, including the motivational and creative effects of digital imagery on learning as well as the nature of digital imagery. Imagery allows children unprecedented opportunities, as it interacts with instructional content, which promote critical and creative thinking and engagement in class activities. This result is supported by those of previous studies [49, 50] that

visual tools, such as digital imagery, can be used to boost children's creative thinking, as they are encouraged to think about certain ideas or topics in detail.

Furthermore, the findings also revealed that using digital imagery to support young learners' language development is not only limited to aiding children in identifying letters and recognizing words but also to helping them make sense of contextual meanings of words. This could be because imagery depicts visual aspects that are associated with the written texts and, hence, the young learners are better able to understand contextual meanings. The integration of images with written texts enhances young learners' ability to visually absorb information, contributing to a better and deeper understanding of instructional content. This result supports those of several studies [3, 4, 36, 45, 51–54], which suggest that the use of visual media promotes reading comprehension by associating words with their meanings in tangible visual contexts.

The findings further revealed that digital imagery improves social interaction in learning environments. The data indicated that incorporating digital imagery into instructional activities, such as interactive games, promotes interaction among children. This result can be interpreted by the fact that educational games supported by digital imagery create a stimulating learning environment that encourages active participation. Digital imagery, which are sensory tools, are key in changing the learning process from a process that is simply mechanical to one that is more complex. This involves using imagery which makes learners think, ask and answer questions, and communicate with the teacher and peers, which potentially promotes their problem-solving skills. This result is also consistent with previous findings that interactive tools, such as imagery, support learners' participation and interest [45, 47, 55, 56].

The results also showed that digital imagery contributes to fostering teamwork within the classroom. This can be explained by the fact that digital imagery provides children with a shared visual tool they can interact with during group activities. This interaction promotes social communication among children and encourages them to collaborate toward shared goals, which is essential in developing social and language skills in early childhood. Previous studies [39, 40, 45, 57, 58] have indicated that the use of imagery in group activities improves young learners' ability to work in teams, thereby enhancing their collaboration and communication skills.

The results further revealed that digital imagery helps *enhance children's understanding of cultural and social concepts.* By including images that represent diverse cultures and experiences, digital images provide young learners with opportunities to engage with various social and cultural contexts. The participants perceived imagery as a conduit between young learners and their world around them, providing them with unconventional means to understand cultural and social diversity. This result is consistent with those of previous research [7, 16, 17, 29, 50, 52] which suggest that visual tools contribute to raising children's awareness of cultural and social issues and helping them develop deeper communication skills and a better understanding of others.

To conclude, the results indicate that digital imagery not only develops young learners' language skills but also contributes to the development of other cognitive and social skills. These results align with contemporary educational perspectives, which emphasize the importance of integrating technology and visual media in early learning environments to enhance the quality of education. Using digital imagery in the language classroom helps children engage in their own learning, think critically, and build relationships with teachers and peers between the teacher and the child, not to mention promoting their understanding of social and cultural nuances.

4.2. Discussion of the Second Research Question

The findings also reveal that academic qualification and teaching experience do not significantly correlate with teachers' perceptions of the utility of visual imagery in young learners' language development. Despite observed variation within the categories of academic qualification on one hand and teaching experience on the other, the results of the ANOVA revealed that the F-ratios for both academic qualification and teaching experience were not large enough to yield statistically significant p-values, indicating that these variables do not seem to play a significant role in shaping teachers' perceptions of the utility of visual imagery in young learners' language development.

These findings question the generally-held view that academic qualification and teaching experience are the major determinants of teachers' perceptions of teaching practices and other related issues. The conventional expectation is

that teachers with higher qualification or more years of experience have better understanding of educational practices and, therefore, their perceptions would be more valid than those of teachers with lower qualification or fewer years of experience.

If academic qualification and teaching experience are not shaping the teachers' perceptions of the utility of visual imagery in young learners' language development, what is? Are there other more important factors which inform teachers' perceptions. Ongoing professional development, in terms of workshops and training programs for improving teachers' knowledge and skills, could minimize the differences between teachers with different levels of experience and qualification and help these teachers acquire the right knowledge and skills which can help them change their perceptions about teaching and teaching practice, even with little training experience and academic qualification.

Furthermore, the school culture and the level of administrative support may also be key to teachers' perceptions. The teachers who work in an environment where they are supported by the administration in terms of resources, guidance, and encouragement may be more confident and motivated to work, which may, in turn, have a positive effect on their perceptions. A supportive environment may mitigate the effect of differences in qualification or experience, leading to more uniform teacher perceptions.

5. Conclusions

This study has highlighted teachers' perceptions of how digital imagery is key in young learners' language development. The respondents reported that digital imagery is an effective tool in making complex ideas easier for young learners to understand, which, in turn, would catalyze their reading and writing skills. Digital imagery is also crucial for vocabulary building and acquisition through the provision of visual representations that support the understanding and application of new words in various contexts. These findings suggest that digital imagery is not merely a supplementary instructional tool but rather a powerful resource that aids language development in ways that are both innovative and engaging.

To ensure the instructional effectiveness of digital imagery, it must be deliberately incorporated into the early-grade language curriculum. The current findings and those of previous research, highlight the utility of visual imagery in young learners' general language development as well as in other areas such as critical thinking, creative thinking, and problem-solving. Matching concepts with their visual representations potentially aids comprehension and promotes creativity and imagination.

Teachers need proper training to make possible the effective incorporation of digital imagery in early language instruction, which may not be possible without training as to how to incorporate digital imagery in day-to-day instructional activities. Continuous teacher professional development should provide teachers with not only how to choose and use appropriate imagery but also how to empower learners to use them to best achieve curricular goals. This approach will ensure that digital images are not only used as decorative artifacts but rather as meaningful instructional tools which enhance teaching and learning alike.

Based on these results, it is recommended that digital imagery be systematically integrated into early-grade language instruction. Digital imagery can be a catalyst for generating ideas and making better sense concepts Furthermore, the content that is put out there in these images should also portray cultural and social diversity so that it can also help the children to know more about other cultures and help them in improving their communication skills. It is also important that teachers are given the capacity to use digital images effectively through training. Workshops and professional development on best practices in the use of images for teaching could help teachers to have the right skills to leverage digital images for language learning.

Even though sound in method and procedure, this research is not without limitations which could limit the generalizability of its findings. The participants in this study were teachers working in private schools in Riyadh and Amman which, in turn, may not be representative of teachers in other areas. Future research should encompass a more diverse sample of teachers, including those from public schools to gain better understanding of the factors that affect teachers' perceptions. In addition, this study used a questionnaire as its sole research instrument. Future finding would be more readily generalizable if triangulated with observational or interview data.

Future research should aim to comprehend the effect

of school leadership style, school climate, and the availability of technological equipment in the classroom. Examining these factors would provide deeper insights into educators' perceptions and identify techniques to improve them. Such research could contribute to creating a more supportive learning environment for both teachers and students. Furthermore, future studies should consider refining the classification of academic qualification to better understand their impact on teachers' professional views. This is because by using more specific categories, the researchers can be able to have more precise findings when evaluating the part played by qualification in determining the perceptions that teachers have.

Based on the findings of this study, it is emphasized that increasing children's concrete language skills involves the integration of digital visual aids into language teaching. Therefore, it should be concluded that educators' perceptions of digital images and other contextual materials play a significant role in the language learning process. This study also highlights the significance of examining how such factors, including the educational context and teacher development programs, can form language teaching and learning. Addressing these factors, along with the effective use of digital images, can improve educational outcomes and foster better language learning experiences for children. Future research should continue to explore the effectiveness of digital images in various educational settings and examine additional variables that may influence teaching practices and perceptions.

Author Contributions

R.A. and A.A.-B. conceptualized the focus of the manuscript, proposed its objectives, and wrote the initial draft of the manuscript. R.A., A.A.-B. and M.A. also collected, analyzed, and interpreted the data. R.A., A.A.-B., and R.F.B. were major contributors to writing the manuscript. All four authors read and approved the final version of the manuscript.

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The research was reviewed and approved by the Deanship of Scientific Research at King Faisal University. Respondents provided written informed consent prior to participating in the study.

Informed Consent Statement

Informed consent was obtained from all the participants in the study.

Data Availability Statement

The raw data supporting the conclusions of this article is available upon request without any undue restrictions.

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Conflict of Interest

The authors declare no conflict of interest.

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